The highs and the lows

The Highs and the Lows – Exploring the Nature of Optimally Impactful Development Experiences on the Talent Pathway

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Abstract

There appears to be general agreement that interaction with significant challenge should be a central feature of the development pathways for future high performers. There is, however, far less clarity about how such programmes should be designed and delivered against core psychological principles. Accordingly, the purpose of this paper is to offer guidelines for talent development practitioners seeking to offer athletes the opportunity to maximise their growth and development. We propose that genuinely developmental experiences will likely offer a level of emotional disturbance and, as a result, more fully engage performers, prompting self and other facilitated reflection, and motivate future action. Furthermore, that there is a necessity for these experiences and their follow up to be managed in a coherent manner and integrated with existing skills, experience and future performance aims. In highlighting these issues, we offer recommendations for talent development coaches, managers, psychologists and parents of athletes.

Talent development is increasingly acknowledged as a complex and multifaceted endeavour. As one key factor in this process, there appears to be broad support for the benefit of developing athletes experiencing and having to overcome a range of challenges along their development pathway (Bull, Shambrook, James & Brooks, 2005; Rees et al., 2016; Sarkar, Fletcher & Brown, 2015; Van Yperen, 2009). This, in turn, would seem to suggest that performers need to maximise what they learn from all developmental experiences (Bjørndal, Andersen & Ronglan, 2018; Collins & MacNamara, 2012; Collins, MacNamara & McCarthy, 2016a; Savage, Collins & Cruickshank, 2016). In parallel, there is a growing body of evidence which suggests that early high performers typically do not maintain the same level of performance in a linear manner through to adulthood (Güllich & Emrich, 2006; Güllich, 2014). For example, those with early advantage in terms of relative age, may drop out of sports at significantly higher rates than their younger peers (McCarthy, Collins & Court, 2016; Connor, Renshaw & Doma, 2019), even though their early experiences seem characterised by greater success.

Although expertise evolves from the interaction of a multitude of factors, it is supported by the holistic range of experiences to which a performer is exposed (Ollis, Macpherson & Collins, 2007). Taken together with the factors listed above, this suggests that the experiences of performers throughout a pathway may not always be positive and, furthermore, that negative experiences may offer significant opportunity for learning. Reflecting this, and in order to support and optimise the experience of developing performers, effective Talent Development Environments (TDEs) have been characterised as offering individualised developmental opportunities, deploying long term aims and methods; and having a focus on the development of psycho-social characteristics, such as goal setting and realistic performance evaluation (Martindale, Collins & Abraham, 2007; Henriksen, Stambulova & Roessler, 2010; MacNamara, Button & Collins, 2010a/b). Of course, these ideas inevitably

reflect on the modus operandi of the TDE. Therefore, they carry implications for where pathways may best place their emphasis, ensuring a grounded and well-balanced approach. If appropriately operationalised, such balanced approaches should serve to support the experiences of developing performers along a challenge-full pathway. Reflecting such balance, a recent invited review highlighted that a specific set of skills, taught, practiced and embedded through the pathway should enable performers to use them in different combinations in order to address varied challenges (Collins, MacNamara and Cruickshank, 2019). In short, we need to identify developmental experiences that can be optimally deployed to harness this developing skillset.

As such, the specific aims of this paper are to critically consider the nature of optimally developmental experiences and make recommendations for talent systems seeking to both deploy challenge and maximise growth from these events. In doing so, we deliberately cast our net across a wide variety of pertinent literature, considering both psychological, educational and sport organisational literature to demonstrate both the depth and breadth of the relevant arguments. In the first section we consider psychological perspectives, utilising extant literature in the fields of emotion, stress, and post-traumatic growth. In the second section we offer educational perspectives and finish by offering implications for applied practice. We argue that experiences which generate peaks in emotional *intensity* are those that are most engaging and energising, prompting performers to engage in significant reflection and offer potential for development. Furthermore, albeit counter-intuitive, negative experiences *properly prepared for, handled and debriefed* (the lows) may offer greater developmental drive and opportunity than positive and enjoyable ones (the highs). As such, our paper carries implications for both psychologists and coaches working in TDEs, with these based largely on psychological aspect of the TD process.

Perspectives on Optimally Developmental Experience

Psychological Perspectives

Emotion. "Reason is, and ought only to be the slave of the passions, and can never pretend to any other office than to serve and obey them"

(Hume, 1969, BII, PIII, SIII)

David Hume's famous proposition offers a perspective on the role played by emotion in stimulating cognition. In simple terms, Hume saw emotion acting as a catalyst for motivation and reasoning. Similarly, contemporary literature suggests that emotional influences on cognition have both strong theoretical and empirical support (Schwarz & Clore, 1996, Wyer, Clore & Isbell,1999). We may therefore see emotion as exerting a strong influence on an individual's cognition and self-schemata, thereby having a significant impact on motivation and effort (Clore & Huntsinger, 2007). In this regard, the feedback loop theory of emotion suggests that conscious emotional experiences drive cognitive processing after an outcome or a behaviour (Baumeister, Vohs, DeWall & Zhang, 2007). Accordingly, affective state can be seen as facilitative of learning by acting as a stimulus for cognitive processing and reflection. Further, it is clear that emotions motivate people to act and that different emotions prompt people to act in different ways (Carver, Sutton & Scheier, 2000).

Importantly, however, there is a need to consider both the quantity *and* the nature of these emotional stimuli. From a valance perspective, negative emotions may promote more detail-orientated processing in a careful systematic manner, whereas positive emotions may focus attention more on generalities (Gasper & Clore, 2002; Schwarz & Clore, 1996). This, in turn, would suggest that there are important *but differential* benefits following positive and negative emotional experiences. Indeed, in the case of negative emotion, the effects may be stronger and longer lasting, providing feedback about one's actions and prompting reflection to help learning and guide future behaviour (Baumeister, Bratslavsky, Finkenauer & Vohs,

2001). In short, different emotional states promote different motivational states and types of reflection (Levine & Pizarro, 2004), resulting in different lines of development.

In addition to the valence of the experience, heightened emotional intensity has also been associated with significant increases in thinking about the activity that one is engaged in (Wood, Quinn & Kashy, 2002). We are also more likely to remember emotionally arousing experiences and for these memories to play an adaptive role in our responses to future situations (Cahill & McGaugh, 1998). Experiences are also perceived to be more meaningful as a result of extremity of emotional valence: emotionally intense experiences induce more contemplation. Furthermore, negative events may lead to a greater search for understanding and, subsequently, be perceived to be more meaningful (Murphy & Bastian, 2019). We may therefore see emotion acting as a highlighter pen, focusing people on incoming information and reflecting on it in a solution-focused manner, thus making information more impactful (Levine & Pizarro, 2004). Thus, it has been suggested that a key role of emotion is to focus attention on critical pieces of information and instigate cognitive processing and the key role of the conscious emotional system takes place following increases in arousal levels (Baumeister, Vohs, DeWall & Zhang, 2007). Emotional feedback may also play a vital role in helping learners decide when and how to transfer what they have learned from one situation to another (Immordino-Yang & Damasio, 2007). As a result, those experiences that offer the greatest opportunity to engage developing performers in reflective processes and energise towards making meaning are those with strong emotional valence.

Stress. Given that stress and emotion could be viewed as exhibiting a somewhat reciprocal relationship, rather than existing orthogonally, there is a notable stress-related 'cost' to be paid for highly emotional experiences (Lazarus, 1999) which means that the volume and intensity of strong emotional valance experiences must be monitored and controlled. Notably in this regard, the study of stress has moved on significantly from the

work of Hans Selye who coined the term stress to describe the "non-specific response of the body to any demand, whether it is caused by, or results in, pleasant or unpleasant conditions" (Selye, 1976, p.76). His work, which profoundly impacted popular understanding of stress, proposed a General Adaptation Syndrome through which, following exposure to stressors, the body would follow a predictable and linear trajectory through a sequence of phases, leading eventually to a state of exhaustion. More recently, however, the theory of Allostasis has added to our conceptual understanding of the impact of stress and individual differences in response to stressors. Allostasis suggests that "the biological systems of the body are in constant flux, adjusting to the demands placed upon it, with the aim of achieving stability through change" (Sterling, 2004, p18). This ongoing evaluation of the match between internal resources and demands allows for adjustments made in anticipation of stressors over time (Ganzel, Morris & Wethington, 2010).

Importantly, it is the emotional regions of the brain which serve as the primary mediators of response to stressors and the concept of Allostatic Accommodation. This refers to an individual's immediate response to a current stressor, followed by the return to original state or the adaptive response to find a new one (Ganzel et al., 2010). If the individual is able to meet the demands, it may lead to growth, adaptation and learning (McEwen & Giarnaros, 2010). Yet the activation of these systems has an inherent cost to the individual, especially when stressors are prolonged, uncontrollable, unpredictable, or the individual lacks the capacity to meet their demands (Kirschbaum et al., 1995; Parihar, Hattiangady, Kuruba, Shuai & Shetty 2011). In these instances, Allostatic Load (AL) may result. This may, in turn, lead to a variety of negative consequences, including compromising an individual's ability to learn (McEwen & Sapolsky, 1995). In short, the acute stress response has evolved in order to facilitate adaptation, and this ability to recall can be used as a reflective platform, both immediately following an incident and also in the long term (McEwen, 1998). Allostasis

further suggests that both the characteristics an individual brings to an experience and their psycho-emotional backdrop are important for their perception and any potential adaptive benefit (McEwen, 1998). Thus, it is critical that we do not view an individual's interaction with any type of experience in a uniform and standardised manner but rather, monitor and control the experience (both actual and perceived) to optimise the benefit.

Valence and impact of stress. As stated earlier, it seems to be accepted that negative experiences can play a longer-term positive role in development. Previous literature has highlighted the role of significantly negative sport related experience in the journey of developing performers (cf. Collins et al., 2016a) and has often been seen through the theoretic lens of Post-Traumatic Growth (PTG) (Tedeschi & Calhoun, 2004; Howells, Fletcher & Sarkar, 2017). PTG can be positioned as 'growth from the struggle with crisis' (Calhoun & Tedeschi, 2006 p. ix). It may also be considered as the process that follows a 'seismic event' which, in turn, induces significant cognitive disruption, challenging a person's narratives, beliefs, goals and creating significant negative emotions (Calhoun & Tedeschi, 2006). It is this disruption that can be seen as the key influence on an individual; the change is due to experiencing something as 'traumatic' rather than the severity of the cause itself (Savage et al., 2016). Further, growth has been linked to the period of inquiry in which someone seeks to make sense of an event; it is this sense making that growth can emerge from (Park & Helgeson, 2006). Thus, when working with the young people who tend to populate talent pathways, and who also tend to be highly motivated and committed to their sport (at least the ones that make it – cf. Taylor & Collins, 2019), significant cognitive disruption can take place as a result of what might externally be perceived as a relatively minor occurrence. Our point here is that both the impact of the incident and how it is being processed need to be monitored and guided to ensure benefit.

In summary, a wide body of literature from the psychological domain appears to be converging on several key points: emotional experiences drive a cognitive response invoking greater frequency and depth of reflection. Furthermore, differences in the valence of emotion appear to provoke different types of cognition. Of course, these disturbances come at a cost and the young athlete that is unable to cope, or subject to an emotional load for an extended period, can suffer maladaptive consequences. Contrastingly, however, those who are able to cope are likely to benefit in terms of learning and development. These factors support the emphasis stated earlier on preparation for, monitoring through and debrief after traumatic incidents to optimise growth and avoid detriment.

Educational Perspectives

To further conceptualise the design of an optimally engaging and energising experience, it may be worth considering the positioning of emotional disruption in the adult education literature. It was John Dewey who used the analogy of the need to climb a tree when faced with a forked road, or rather an ambiguous dilemma that required reflection (Dewey, 1997). "The origin of thinking is some perplexity, confusion or doubt" (Dewey, 1997, p.12) or, in other words, it is the experience of difficulty that can catalyse learning and growth.

Inspired by the work of Dewey, John Mezirow's theory of Transformative Learning proposes that a transformative learning experience that changes a person's perspective, will typically begin with a 'disorienting dilemma' leading to a significantly heightened affective state (Mezirow, 1978). Mezirow further states that "The traumatic severity is clearly a factor in establishing the probability of …perspective transformation" (Mezirow, 1981, p. 7). These disorienting dilemmas can be generated as a result of a sudden incident, or that occur as a result of a series of events leading to critical reflection or transformation. Of importance, 'disorienting dilemmas' are seen as the *beginning* of a process of reflection; it is not the dilemma alone that will lead to adaptive benefit (Mezirow, 1978). Further, these 'dilemmas'

have also been identified as having the potential to produce varied and, at times, adverse effects on learners, potentially impacting on long term motivation. As a result, there is an absolute need to understand the characteristics of individuals prior to the experience (Roberts, 2006). In order to achieve an adaptive response, the learner requires expert support, both individually and institutionally (Taylor, 2007). Notably, support should not come in the form of comforting but rather, provide 'good company' as a means of supporting learning for students at the 'edge' (Berger, 2004). In this conceptualisation, learning from an event is a result of the reflective process provoked by emotional upheaval, rather than the emotion itself (Mälkki, 2012). Key issues here are that it is not just the provision of challenging events alone but rather, the preparation for/debrief of (Collins et al., 2016b) and timing/monitoring of impact which ensure optimum positive outcomes.

In addition to the ideas of Mezirow and Dewey, there is a wide body of literature suggesting the benefit of emotional disruption in order to provoke reflection including: Festinger's theory of cognitive dissonance (1957), Schön's proposed need for 'confusion'(1983), or Engeström's 'contradictions' as the source of change and development (2001).

Yet, as with any educational endeavour, along with a consideration of what works, we need to consider the potential side effects of any intervention (Zhao, 2017). We therefore need to hold a consideration of benefit and possible cost at the heart of any decision making about an intervention that may cause an emotional disruption to a performer. For example, an athlete who experiences a very stable and accelerated path to a high level of academy performance, might have benefited in the short term from the positive feedback that is both implicit (through selection and social standing) and explicit (through performance review and coach feedback). Yet it is sometimes the case that, consequently, s/he hasn't necessarily

developed the full range of psychological skills required to overcome challenge and cope with negative emotional states when they inevitably occur (cf. Taylor & Collins, 2019).

Alternatively, an athlete who experiences too great a level of challenge with repeated performance setbacks, negative feedback and resultant negative emotional state is unlikely to benefit and it may have a significant impact on their motivational resources, unless they are already in possession of very strong mental skills and a reliable support network outside the central challenge.

The story so far – implications for pathway design, content and method

As with the section on psychological perspectives, we have offered a broad range of sources with significantly different approaches, yet these also appear to converge on a similar point, adding to the evidence that there is a need for emotional *disturbance* to test previous learning and provoke future development. Further, it appears critical that these events are both prepared for and supported in a coherent manner. Thus, if we are to offer an optimally developmental set of experiences (both sport related and more broadly educational) for young performers, we should be seeking to provoke a range of emotional reactions to engage and offer varied points of reflection from which to maximise learning. In short, experiences that leave a person feeling good all the time are unlikely to engage and energise a performer across the range of cognitions that supports optimal future learning and growth. Yet critically, neither does a consistently negative affect. In short, 'it depends'! and in order to manage this process, it requires coordinating planning beyond the here and now. Thus, if we are to see a developmental journey offering a range of emotional experiences to support trajectory, there is a need to elevate thinking above the micro level and see the broader need to cater for the balance of today and the future. The ability to do this is often significantly challenging given the milieu that many athletes will find themselves a part of; one often characterised by relative incoherence across various levels of the sport and goal conflict between different

stakeholders engaged with supporting the athlete (Bjørndal & Ronglan, 2018). Poorly planned developmental experiences across different stages can be confused and lack the essential focus on the future. Reflecting the need to ensure coherence, and, when considering the range of desired experiences for athletes, we are in essence making curriculum decisions. Notably, this has already been considered from an educational perspective. In a 2013 paper, Dylan Wiliam offered a list of seven principles of curriculum design that offer guidance about how educational experiences might meaningfully be organised (Wiliam, 2013):

- Balanced
- Rigorous
- Coherent
- Vertically Integrated
- Appropriate
- Focused
- Relevant

These principles might be operationalised across two dimensions to help understand the needs of both today and the future, promoting optimally developmental experiences, and managing emotional load. Accordingly, in the next section we will discuss how the principles could be deployed in the talent development setting.

Applying both perspectives – Designing an effective system

Catering for today - Horizontal Coherence

In applying these perspectives, we make use of existing literature that emphasise the importance of coherence throughout a pathway (cf. Grecic, MacNamara & Collins, 2013; Webb, Collins & Cruickshank, 2016; Henriksen & Stambulova, 2017). If we are to effectively cater for today, we need to consider how the experiences of athletes combine and overlap, then cumulatively build as they progress. This requires the experiences of an athlete

to mutually and progressively reinforce a limited set of clear guidelines, offering coherent connection between them and a clear thread which builds over time to form a heuristic for handling challenge. The principle of focus, deciding on the most important factors within a block of time against what is 'ignored' in short, the key procedural lessons. The obverse of the principle of focus is the principle of balance, offering performers the opportunity to develop across a range of areas. Focus and balance should be considered in tandem, however; a range of experiences cannot be both maximally focused and maximally balanced. The critical factor is that the different areas of the athlete's curriculum are coherent and reinforce one another. Finally, for a curriculum to be horizontally coherent, it needs to be relevant to those experiencing it and should connect valued outcomes for the athletes at that stage of the pathway, ideally across the different environments within which the athlete lives.

For example, an academy coach may spend significant time attempting to help an athlete understand the relevance of a technical factor in their performance that is deemed to be a key element of focus for this stage of the pathway. From a negative perspective, another coach may mitigate this work by asking an athlete to work on a broader range of performance factors because, despite being supportive of the athlete's long-term ambitions, they are unaware of, or not in agreement with, the athlete's perceived needs. In an ideal world, however, different coaches, even at different levels (e.g. club and select team age group) will communicate and combine their approaches, both epistemologically and content-wise, to optimise the impact of the greater coherence. Finally, and also as a further promoter of coherence, techniques may be taught, deployed, evaluated and tweaked across a number of settings. Using the example of an academy player, these might include the sport, education, social and lifestyle…the latter particularly when the athlete is resident in an 'away from home' setting.

Catering for tomorrow - Vertical Integration

Reflecting the same dimensions, an optimal blend of athlete experiences will also be vertically integrated in order to cater for the future needs of an athlete. This integration is bi-directional; so, rather than just being aligned towards the future, it will also take account of prior learning and development; the idea of a forwards and backwards audit. Integration can be understood through two principles, the first being the concept of rigour, or the extent to which what is being experienced now is supportive of long-term future learning. It will shape the development of 'disciplinary habits of mind' that enable sustained engagement with their sport: literally, building, testing and tweaking skills for future deployment (cf. the ideas of metacognition and 'in advance' skill development expressed in a video games approach - Price, Collins, Stoszkowski & Pill, 2017). Coaching will also be delivered in an epistemically broad manner, recognising the need for a long-term focus (Claxton, 2014) and offer performers substantial experience in making evaluative judgements about the information they receive (Carless & Boud, 2018) by 'confronting' them with a variety of challenges to be addressed in a variety of ways. Of course, vertically integrated experiences will also be age and stage appropriate and will cater for the developmental needs of an athlete at a given age/stage of their journey. They will, however, always keep the longer-term needs of the athlete in mind, with these macro needs often taking precedence over the here and now (cf. the nested approach to planning – Abraham & Collins, 2011).

As an example, a coach could spend significant time in case conference meetings to ensure alignment across an age deployed staffing group to offer an athlete some robust feedback to stimulate more detailed reflection about an element of performance necessary for their future development. Yet, vertical integration could break down if injuries in the senior squad see the athlete promoted to play up, mitigating the value of the feedback that they received and placing them in an environment that they are neither physically nor mentally ready for. Such 'real life' incidents present a challenge for the coach and the talent pathway in

attempting to ‘orchestrate’ a process that is both complex and multifaceted within one environment but also which across a development pathway requires significant ‘string pulling’ to facilitate desired objectives (Jones & Wallace, 2006; Jones, Bailey & Thompson, 2013). This challenge is exacerbated when parents start to see ‘playing up’ for an older age group as a sign of status and progress, leading them to encourage and even demand a situation which can often serve to derail their child’s progress.

Seeking the balance of catering for both today and the future is a critical function of development coaching in seeking to generate genuinely developmental experiences for performers. In this sense, an athlete’s curriculum may best be conceptualised as a shared mental model (SMM) to shape and understand their developmental experiences. In short, the design and deployment of TD systems must be carefully integrated to optimise the coherence against the variability and variance of challenge (cf. Webb et al., 2016)

Implications

This final section will seek to make recommendations as to how these challenges might be meaningfully approached and offer suggestions as to what coaches and sports psychologists might do. In pursuing this aim, we again offer different theoretical perspectives and evidence-based processes which might be incorporated.

Professional Judgment and Decision Making. Professional practice can be seen as a series of decisions which assess which issues require attention, prioritising and setting goals then designing appropriate courses of action. As with other support specialist interventions (e.g. sport psychology) intention for impact can be seen as the first and primary step in designing effective plans that will see the practitioner formulate their intended outcomes prior to the event, then refine them as things develop (Martindale & Collins, 2005). As such, we can see the practitioner’s selection and design of the intervention, then the effective application of it, as critical features of effective Professional Judgement and Decision Making

(PJDM). This 'knowledge in action' (Schön, 1987) can underpin subsequent judgments, decisions and actions. Further, PJDM enables a practitioner to design, deploy and refine an optimal blend of strategies dependant on the environmental and interpersonal challenges that they face (Collins & Collins, 2015). PJDM in this regard will influence both individual actions and the design of the sociocultural context.

In order that horizontal coherence and vertical integration are effectively operationalised, there is a requirement for potentially large groups of coaches, specialist practitioners, parents and other stakeholders to make decisions and take actions that support both the now and the future. Abraham and Collins (2011) extended the sport psychology concept of 'Nested Thinking' to operationalise the need for integrated elements of both Classical Decision Making involving slow, offline thinking with effective use of pre mortems and if-then planning with a more dynamic and the more immediate Naturalistic DM style (NDM cf. Klein, 2008). Offline thinking should seek to develop a SMM of an athlete's curriculum amongst the staff group and other stakeholders. Actions taken to generate this shared understanding are critical and no assumptions should be made that stakeholder groups are coherent in their views or beliefs without careful checks (Pankhurst, Collins & MacNamara, 2013). In turn, this approach supports the more flexible NDM that all members of this group will face when making decisions about appropriate interactions with the athlete during peak affective states.

Experience of Functional Variability. When deployed effectively, the result of this process should support the decisions of a multitude of stakeholders; mitigating the risk of incoherence yet allowing for an appropriate level of difference. This builds on the work of Webb et al. (2016) who proposed the concept of the 'goldilocks' approach in which, optimally, performers would engage with different coaches, offering different but still comparatively coherent experiences. This functional variability of coaching, when kept

within a certain bandwidth, has the potential to support athletes develop the adaptability to prosper in the future (see also Bjørndal, Andersen & Ronglan, 2018). Webb and colleagues further proposed that an appropriate level of coherence and integration (both vertical and horizontal) would be supported by the use of SMMs across staffing and stakeholder groups in talent pathways. We seek to extend the point and consider how the emotional experience of performers might be framed. As a result, this functional variability of experience and resulting internal emotional state should form a critical role in the development of talent. This would see periods of time when athletes were subject to increased levels of challenge, followed by periods of lower emotional load in order to recover and consolidate learning.

The question of balance between coherence and level of difference between stakeholders (coaches, parents, staff, support staff) is critical. It is both undesirable and unrealistic to expect this group to hold *exactly* the same perspective and be completely aware of the athlete's every need, even when extremely autocratic leadership styles are employed. Yet, given the inevitable differences within any such group, overly influential trusted advisors (for example a single high-status mentor - often a current or recently retired elite performer) can be maladaptive, especially as the quality of social support can be seen as vital in adapting to stressors (Peterson, Maier & Seligman, 1993). It can also have an adverse impact on the athlete's ability to learn from challenge, especially as external perceptions of challenge or failure as being debilitative may act to prevent optimal consolidation (Haimovitz & Dweck, 2016). The 'face valid' status of the mentor can also lead to an over dependence on their advice, making the developing athlete lazy in his/her reflection (cf. KR Crutch; Salmoni, Schmidt & Walter, 1984). Put simply, the wrong conversation at the wrong time, even if the advice therein is well intentioned and accurate, can have a significantly negative effect on the long-term trajectory of a performer (Calhoun & Tedeschi, 2006).

Similarly, a TDE should also seek to work with the peer group of an athlete. Depending on the age of the athlete, they may be more likely to utilise social support from peer groups than the family unit or staff (Van Yperen, 1995). Given the context of many young performers, their teammates may be best placed to assist with this element of social support. If group dynamics are appropriate, there may even be benefit to reflection as part of a group (Richards, Mascarenhas and Collins, 2009). This process would allow athletes to learn from shared experience, the experience of others and initiate intra group social support.

The use of SMMs to support coherence and integration seems increasingly important given the expanding numbers of people engaging with athletes within a pathway; especially when pathway and athlete are successful. As a further complexity, in many sports the athlete will find themselves a part of a number of different environments, working with a number of different coaches, athletes, staff, teachers and, perhaps, agents. In this sense, it is important for the talent pathway to not only consider the direct training environment of the athlete within the sport, but also the other environments that they find themselves engaged with; in short, the *totality* of the performer's experience. Working across these various environments and with various stakeholders, the athlete is presented with a wide variety of inputs that could significantly challenge the prospect of getting to a 'goldilocks' type level of functional variability in experience. Future research should also seek to understand the nature of the social support around a performer and what advice they are receiving from various stakeholders if we are to more effectively manage highly emotional experience throughout a talent pathway.

The point here is that there are significant benefits to the management of the emotional valence of the developing performer, but a lack of coherence within and/or between sources has the potential to offset the long-term benefit and lead to stagnation or confusion. Alternatively, if the emotional experience of the athlete is always positive, it may leave them

vulnerable when things *do* become tough (cf. Collins et al., 2016a) as they inevitably will. This is especially important as there is a significant body of robust evidence to show that those performers who have early advantages fall away in increasing numbers the higher up the pathway they go (McCarthy, Collins & Court, 2016; Connor, Renshaw & Doma, 2019).

The 'goldilocks' approach offers an alternative, where the experience of the developing performer is varied at an appropriate level in line with their needs. We can therefore see a critical, yet underestimated role for talent pathways is generating curriculum SMMs amongst stakeholders and staff groups.

Promoting Coherence – A potential curriculum

Psychological Characteristics of Developing Excellence (PCDEs) have been associated with both supporting progress and successful outcomes in talent development (MacNamara et al., 2010a). Additionally, it appears that this constellation of skills helps to support an individual's response to critical episodes on the pathway (Savage et al., 2016). The development of PCDEs should therefore form a critical aspect of an athlete's curriculum. PCDEs have been proposed to be optimally developed through a learning cycle of 'teach, test, tweak, repeat' (cf. Collins, MacNamara & McCarthy, 2016b). That is, psychological skills taught through a variety of means, tested through realistic and appropriate challenge (inducing emotional disruption) and then tweaked through meaningful debrief. If optimally deployed as part of an appropriately balanced curriculum (cf. Wiliam, 2013), the focus on the development of PCDEs and associated shaping of a broader SMM should serve as a suitable means to keep stakeholders focused on long term, macro goals and maximise the utility of changes in emotional state.

Individualised Programming. Individualisation has long been seen as a key element of effective talent development practice (Martindale et al., 2007; Henriksen et al., 2010). If TDEs are to offer individualised development opportunities over the long term, consideration

must be given to the potential benefits of an athlete's experience of a range of emotions as they progress. As one example, this is in line with the work of Collins, Willmott & Collins (2018), who highlighted the benefit of the deliberate planning of variations in emotional load to support the skill development of action sports athletes; a feature which they termed emotional periodisation. Engaging and energising experiences should be seen in the same way as high risk and high failure activities, which need to be prepared for through development of pertinent skills, then followed up by restful consolidation blocks to embed learned skills before repeating the cycle. Importantly, the foundations of the Collins et al. approach were the high levels of trust between coach and athlete, support from the coach on load management and the taking account of individual differences. These individual differences are the result of the characteristics that are brought to an experience and the psycho-emotional backdrop that they are layered against. As a result, there is a need to understand individual differences in both the intensity of response to experience, but also the extent to which they are likely to experience either positive or negative emotion (Carver, Sutton & Scheier, 2000).

This can be seen in a similar manner to a coach's need to understand previous training history and current training load before prescribing physical training to prevent an injury (cf. Gabbett, 2016). Coaches need to be just as aware of a performer's previous mental states in order to prevent a maladaptive psychological response. This would see a consideration of the current characteristics of each performer, especially as it has been suggested that excellence in coping precedes excellence in performance (Poczwardowski & Conroy, 2002). This may be especially important given that the young performers arriving in talent pathways may be less well equipped to cope than they previously might have been (Haidt & Lukianoff, 2018; Wade, Pope & Simonson, 2014), due perhaps to the 'excessive care' provided by well-meaning parents and others (cf. Castro, Halberstadt & Garrett-Peters, 2017).

Primed preparation. The priming stage can be seen as deliberate preparation for challenge, which should be embedded across talent development practice. Pathways should be modelled to ensure appropriate skill development to ensure that when an individual is confronted by an experience that causes significant emotional upheaval, they will already be equipped with the resources to cope and rebound from the drop in performance and perceived performance potential (Aspinwall & Taylor, 1997; Savage et al., 2016). It is worth emphasising the need for this practice to be embedded throughout pathways, however, especially given that not all highly affective experiences can be deployed deliberately. On the individual level, a formative assessment tool such as the PCDEQ2 (Hill, MacNamara & Collins, 2018) may help to understand the needs of an individual performer and understand their readiness to engage with a significant affective experience.

In addition, there is a need to consider the experience of the athlete both horizontally and vertically to understand their broader needs. This should inform the extent to which the athlete needs to be made aware of an upcoming challenge and the potential priming of the wider group that support the athlete. This needs analysis runs parallel to the concept of athlete centred coaching which suggests that coaches need to focus on the needs of the athlete, rather than the needs of the coach (Kidman, 2010). The decision to take advantage of or induce high levels of emotion is rarely a comfortable one for athlete or parent and, as such, may challenge the extent to which a coach is truly athlete centred (or perceived as such), especially given the propensity for the challenging conversations and the careful management that may be necessary. Maybe yet another example of being cruel to be kind!

Well-structured Follow up. As a follow up, it is critical that the emotional upheaval of the athlete is capitalised upon to support future learning and development. Engaging and energising experiences may yield significant learning as a result of reflection but, without follow up, what is learned may or may not be adaptive for the athlete in the long term.

Consequently, there are careful decisions to be made about the extent of and nature of support offered to the athlete. This should be informed by the work undertaken to build SMMs through slow off-line thinking and, given the complexity of this process, we would suggest that this intention for impact should serve as a core feature in guiding these decisions and understanding the effectiveness of an intervention (Martindale & Collins, 2007). The decision that "talent needs trauma" is not an open licence for unthinking and unplanned pressure (cf. Collins et al., 2016b). Rather, it is the careful priming, timing and follow through on the incident (both planned and natural) which reaps the benefits.

Optimally therefore, athletes would engage with the preceding experience, reflecting upon it and deploying appropriate psycho-social resources to support adaptive learning (Hill et al., 2015; McEwen & Giarnaros, 2010; Sarkar & Fletcher 2016). Given that estimates of learning from emotional experience are subject to distortion and inflation on the basis of the size of the emotional reaction (Baumeister, Alquist & Vohs, 2015), we would recommend that the role of the coach is to be aware of and act upon subtle changes in the performer through careful observation. As a consequence, s/he will be equipped to actively steer reflection as necessary, either pushing or in other cases pulling back depending on the individual (Bjørndal & Ronglan, 2018; Collins et al., 2018). The acting upon and noticing of subtle changes will be supported by the nature of the coach-athlete relationship (Jowett, 2017). If the athlete has a strong relationship with the coach, and there is a level of closeness, co-orientation, complementarity and commitment, it is more likely that the coach will receive honest feedback from the athlete and the athlete will trust the coaches guidance potentially enabling more adaptive outcomes (Jowett, 2008).

As the final stage in this Teach-Test-Tweak cycle (Collins et al., 2016b), the experience should be followed by a period of recovery, allowing for consolidation, the build-up of psycho-social resources and prevention of the negative consequences of sustained emotional

load. The process has the potential to be especially impactful if coupled with the development of skills such as role clarity and critical thinking to support future adaptability and coping. As such, if appropriately primed and followed up, the emotional experiences of performers can be utilised to test previously developed skill sets and act as catalysts for future development.

As an example, if a young athlete makes a significant error, leading to an unexpected underperformance, it is likely to illicit significant negative affect. Of course, this will (or undoubtedly should) lead to careful reflection on the athlete's state of development and whether remediation/a change of plan is appropriate. From a psychobehavioural perspective, however, it also offers the coach with a range of decisions that should be informed by the SMM of the athlete's curriculum: i.e. to what extent do they have the skills to cope with and learn from the event? What are their needs in both the short and long term? If this was the athlete's first experience of this type of challenge, the subsequent reflection may lead to the athlete deciding not to put themselves in the same situation again or for the coach to rapidly reschedule the season's competition plan. Yet, what may be most adaptive for their long-term process is putting in place a technical and mental skill development plan to support the next time they are faced with a similar challenge. As such, rather than ignoring the incident, or overly comforting the athlete, the coach will need to take appropriate steps to utilise the detailed cognitions of the athlete, steering them in a direction to support their long term aims. Horizontal coherence will ensure that all involved are in line with the plan. Vertical integration will ensure that the next steps are planned and followed up to maximise benefit.

Conclusions and Consequences for Practice

This professional practice paper has critically considered the nature of genuinely developmental experiences for developing performers and argued for the significant benefits of functionally variable changes in affective state of an athlete and how it can be maximised

to support long-term progress. We have sought to present a broad range of literature to highlight the range of theoretical and empirical positions that appear to converge on a similar point, offering overwhelming evidence for the utility of negative emotion for optimal development. Those experiences that offer emotional peaks in intensity are seen to be the most memorable and meaningful (Murphy & Bastian, 2019) and will elicit the highest levels of cognitive engagement in the form of reflection (Baumeister et al., 2007). Yet critically, these experiences must be prepared for and exploited, naturally occurring or deliberately engineered. It is in this sense that we can conceptualise the role of the support practitioner (whether coach, psychologist, teacher or parent) as being more than just someone who continually offers an endless stream of positivity, but rather, meaningfully and appropriately manages the emotional state of individual athletes through an appropriate mix of praise, check, challenge and drive.

It is clear from the body of work that negative emotions can serve as a stimulus for change and positive emotions can serve as encouragement and reinforce motivation. Ultimately, coaches need to be able to deploy both the high and the low to optimal effect, nested within a broader pathway context, in order to optimise experience now, but with the long term in mind. Whilst there are clear benefits of both positive and negative emotional states, it is also clear that there are risks to remaining in either state for too long. In parallel, however, there is a need to be mindful of the potential side effects, as with all pedagogical endeavours (Zhao, 2017). We therefore need to be aware of the overall psycho-emotional backdrop against which experiences happen.

Finally, given the often-competing goals of the various stakeholders that sit around an athlete at various levels of performance, there are significant barriers to the horizontal coherence and vertical integration of an athlete's experience. It is thus critical that that time is spent developing the SMMs of support groups to agree practice against the curricula of

performers to support decision making during times of peak emotions. An approach that would not be uncommon in the best schools that both authors have worked in. There should therefore be an explicit focus on the preparation for and debrief of developmental experiences. It is not enough to simply count on the individual, they need to be prepared and debriefed for the benefits to be realised. To support this, careful monitoring is needed, just as it is too easy to overtrain physically (Gabbett, 2016), the evidence clearly shows the same psychologically. Thus, all stakeholders need to understand the bigger picture in order to offer the performer a coherent experience now and one which is integrated to the future. If one element of the performer's experience doesn't offer this, then disharmony and conflict are likely outcomes, both within the system and externally (coaches, parents, peers, support staff etc). It is beyond the scope of this paper to offer guidance about *how* this might be accomplished, for further information the reader is directed to Collins et al., (2016b) and Collins and MacNamara (2017).

Further empirical investigation is now required to understand the experience of athletes within talent development pathways, how they make sense of the input of coaches and affective states generated by their experiences.

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